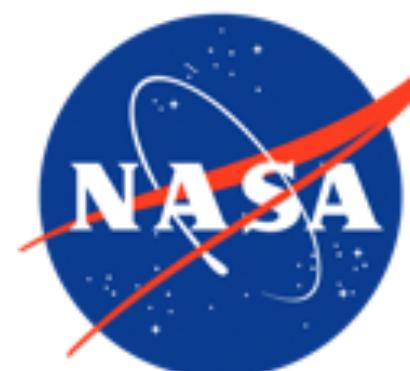


# **Sentinel-1 Time Series of Transient Creep on the Concord Fault, Eastern Bay Area**

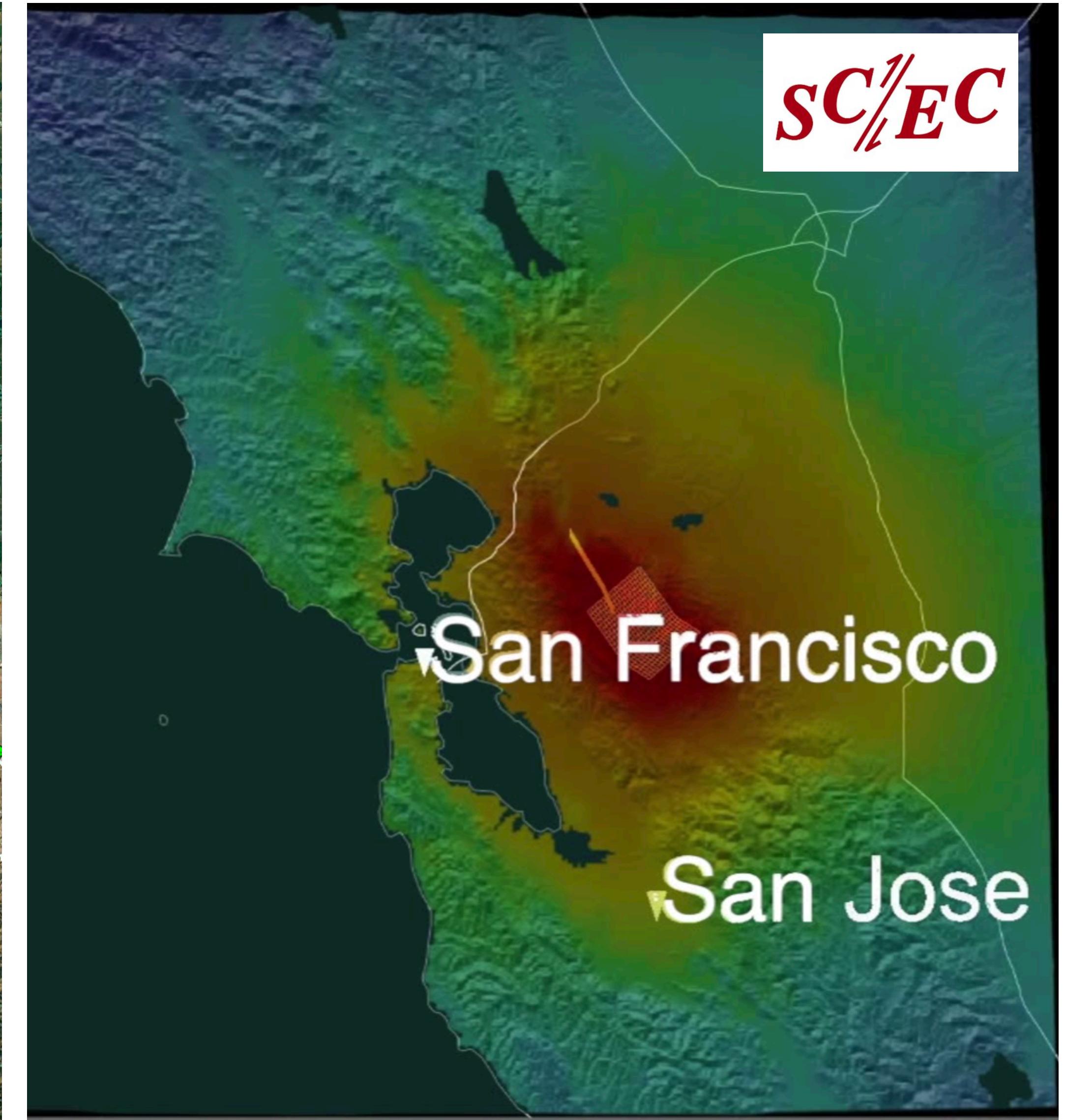
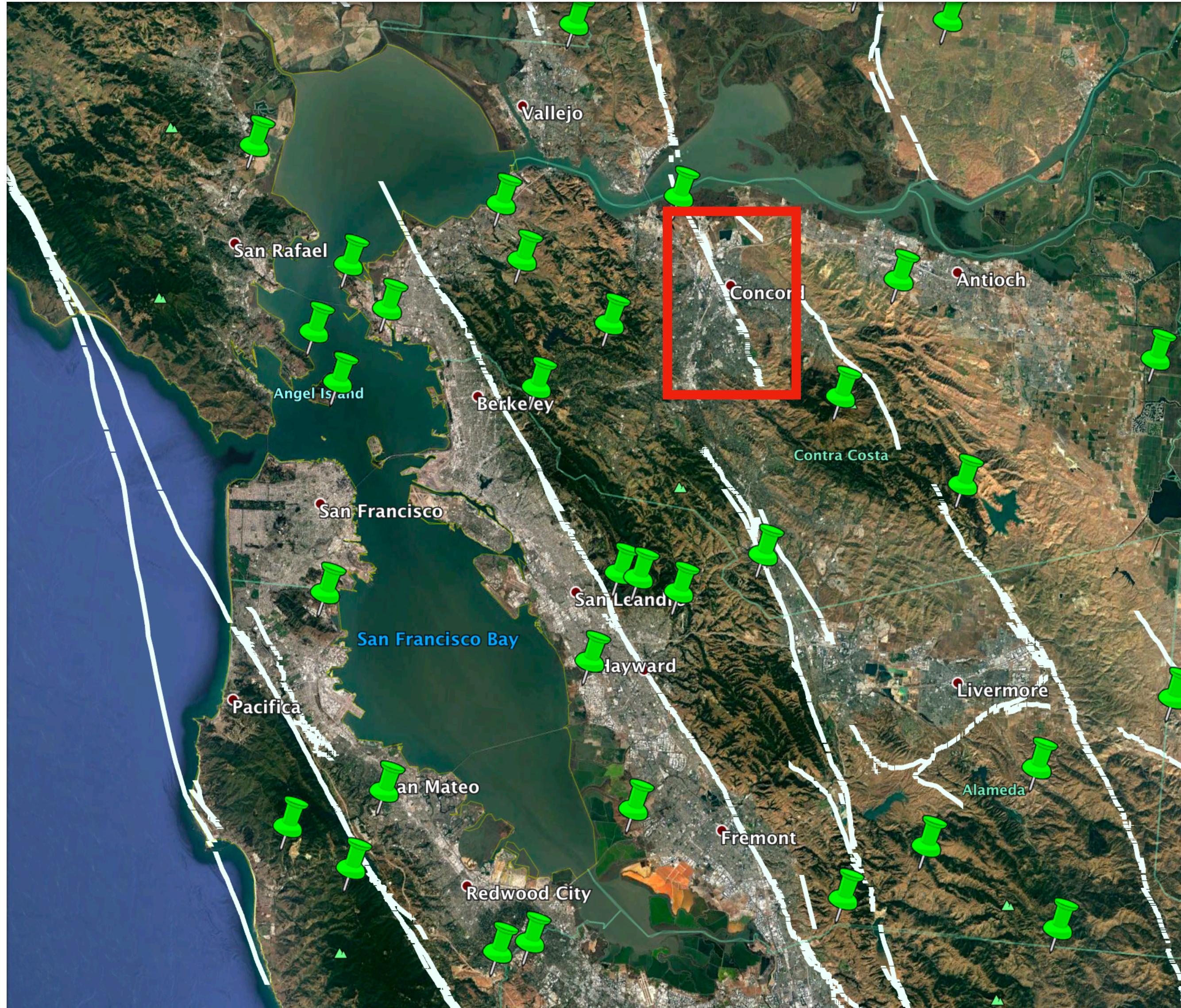
Ekaterina Tymofyeyeva, Heresh Fattahi, David Bekaert, Piyush Agram



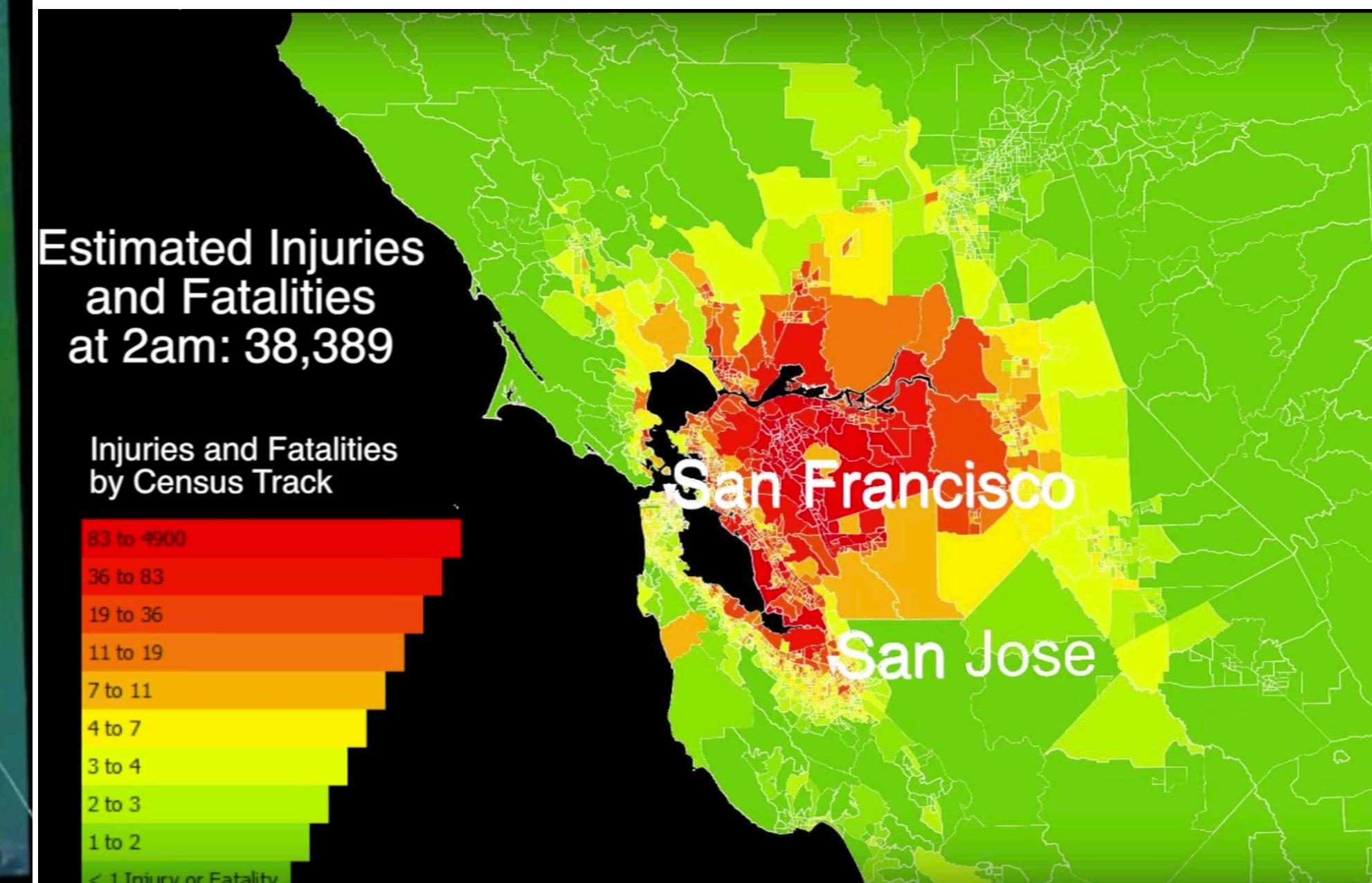
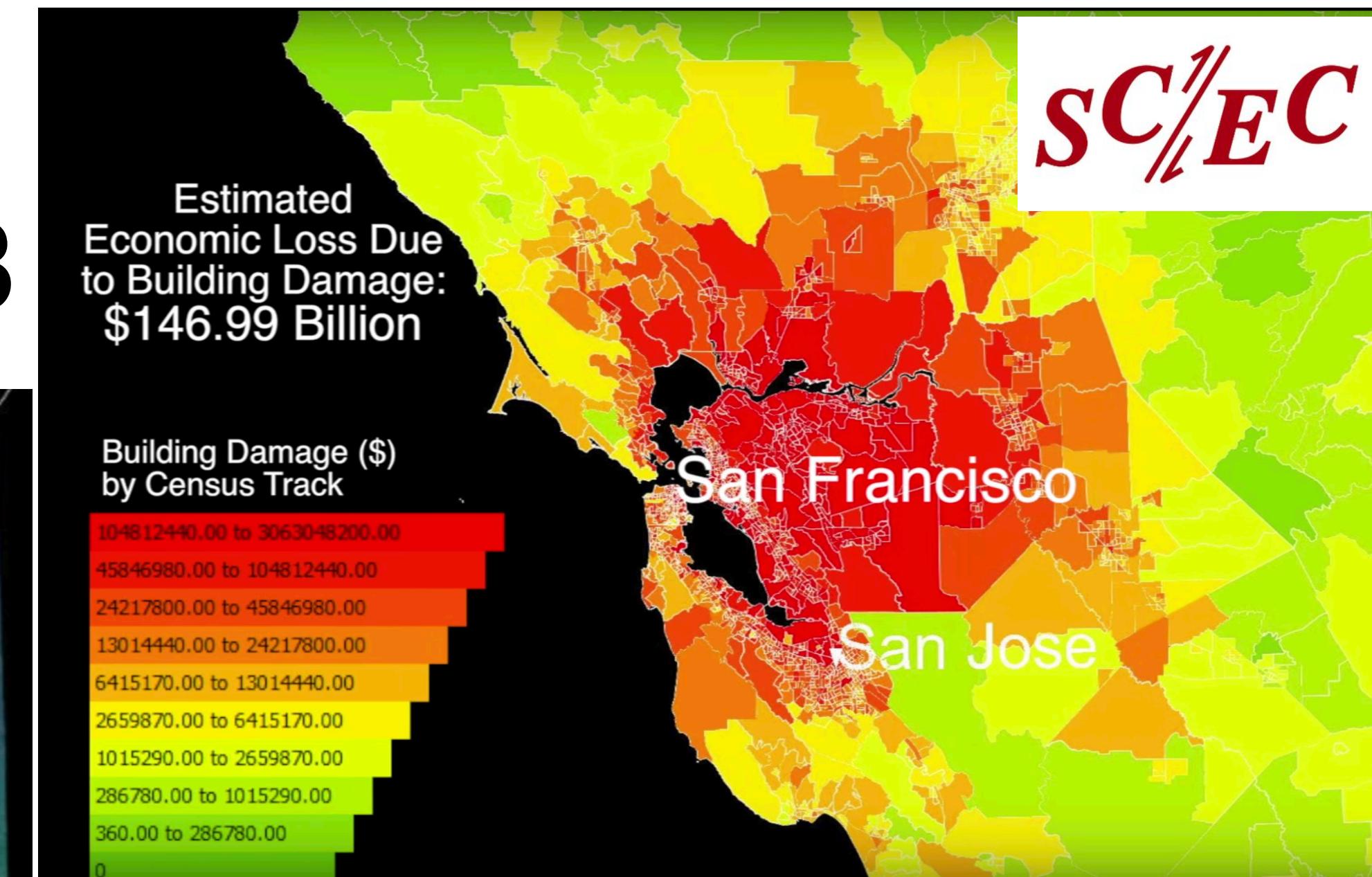
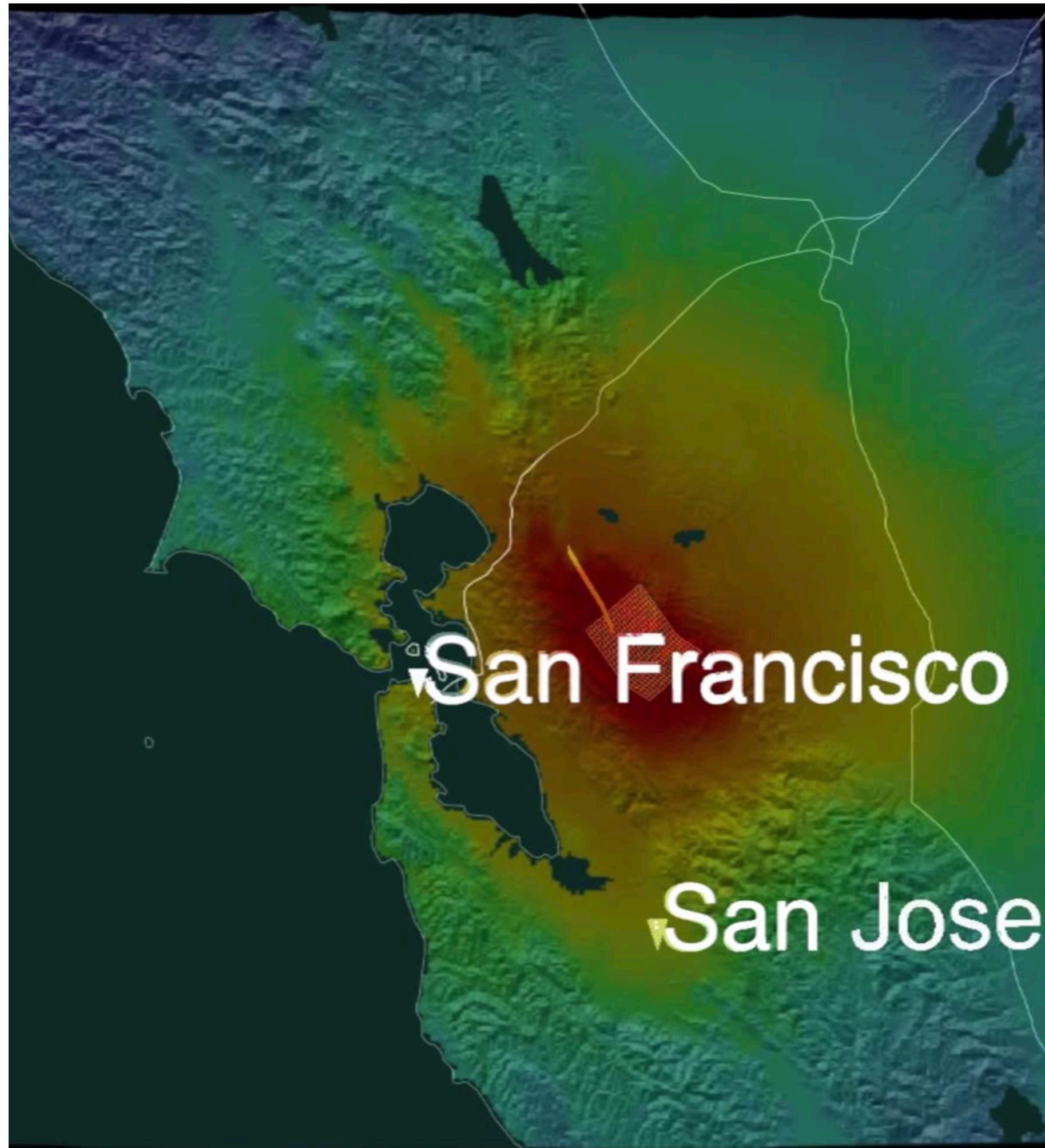
**Jet Propulsion Laboratory**  
California Institute of Technology

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# Concord fault

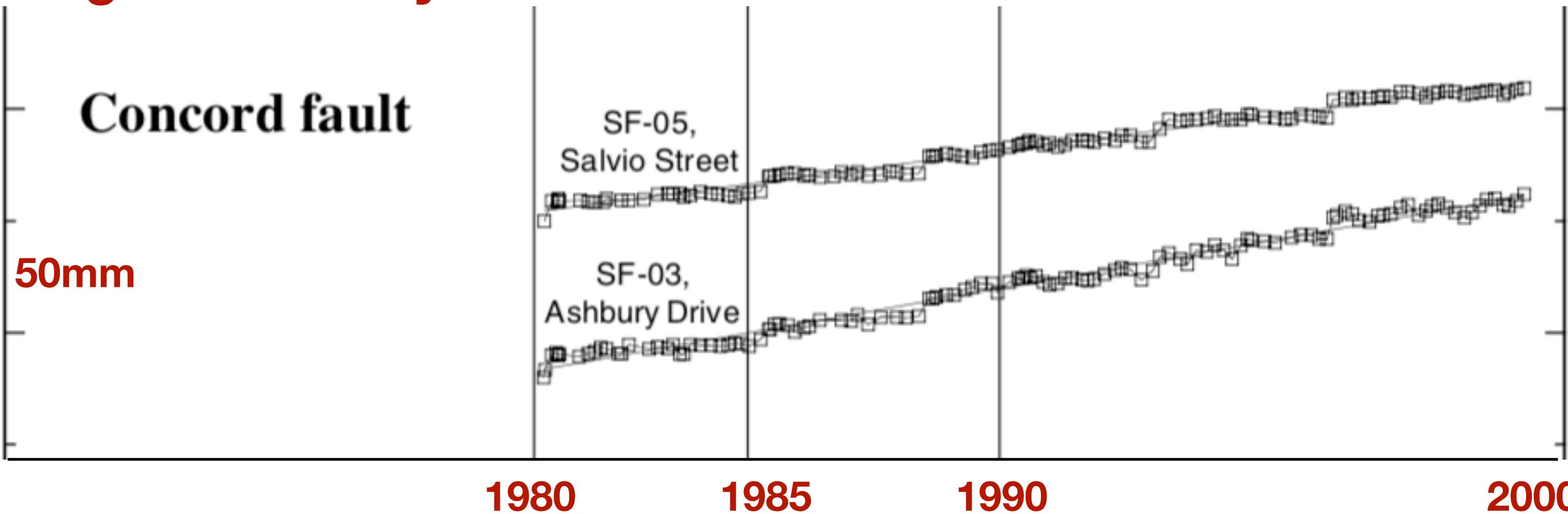


# Estimated shaking and damage: Mw. 6.8



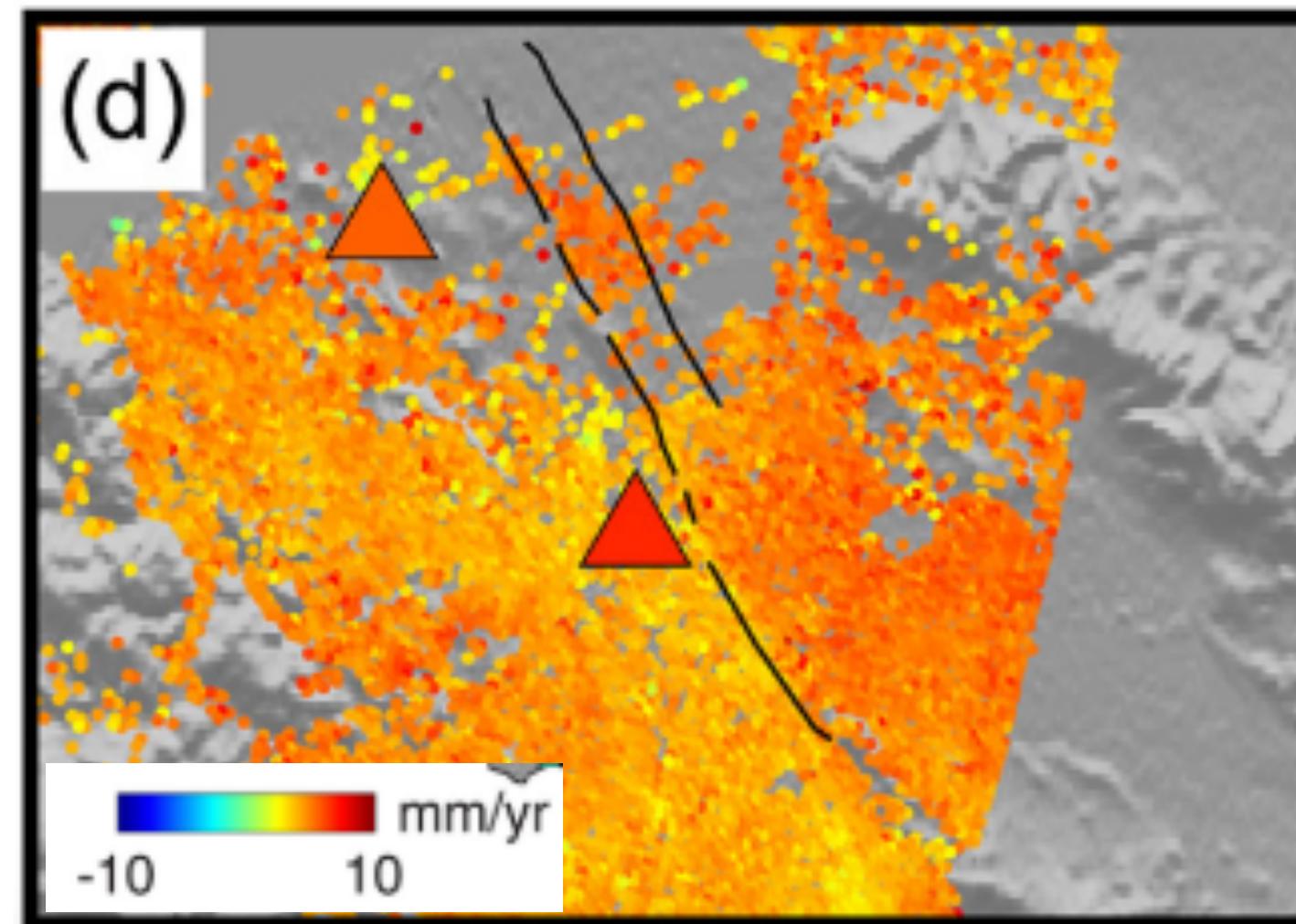
# Previous studies on Concord

## Alignment arrays:

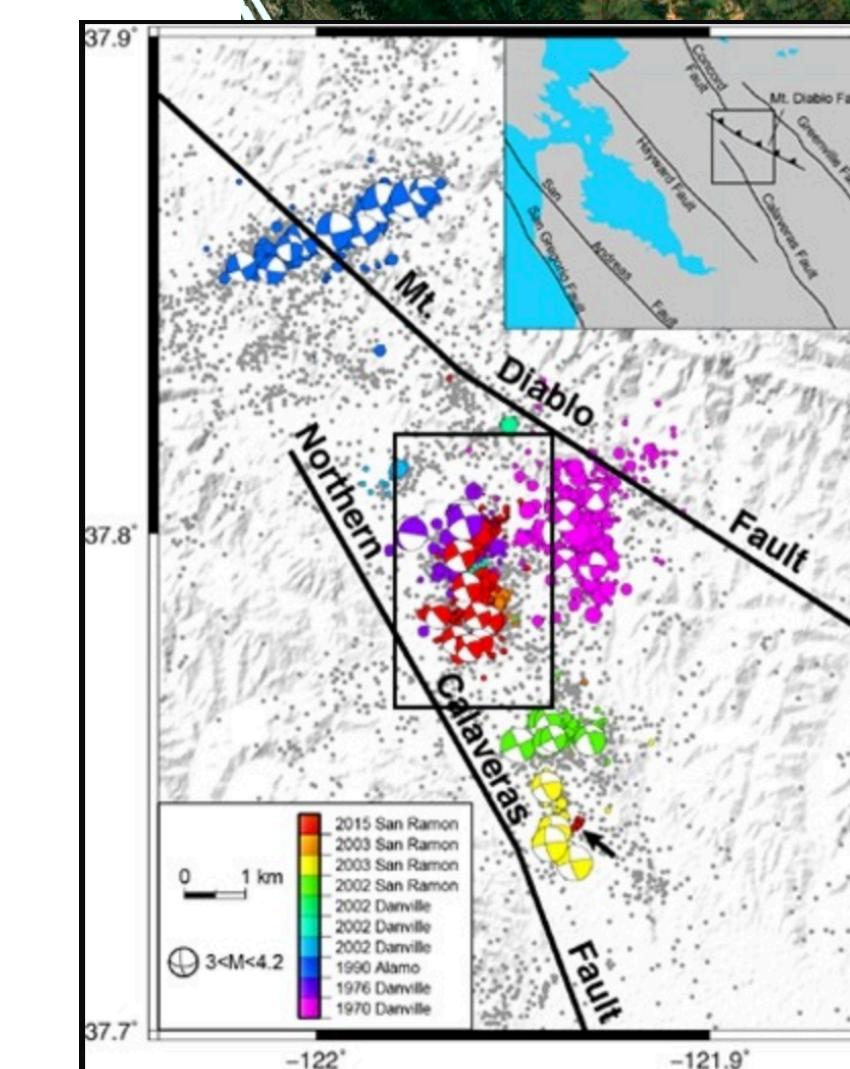
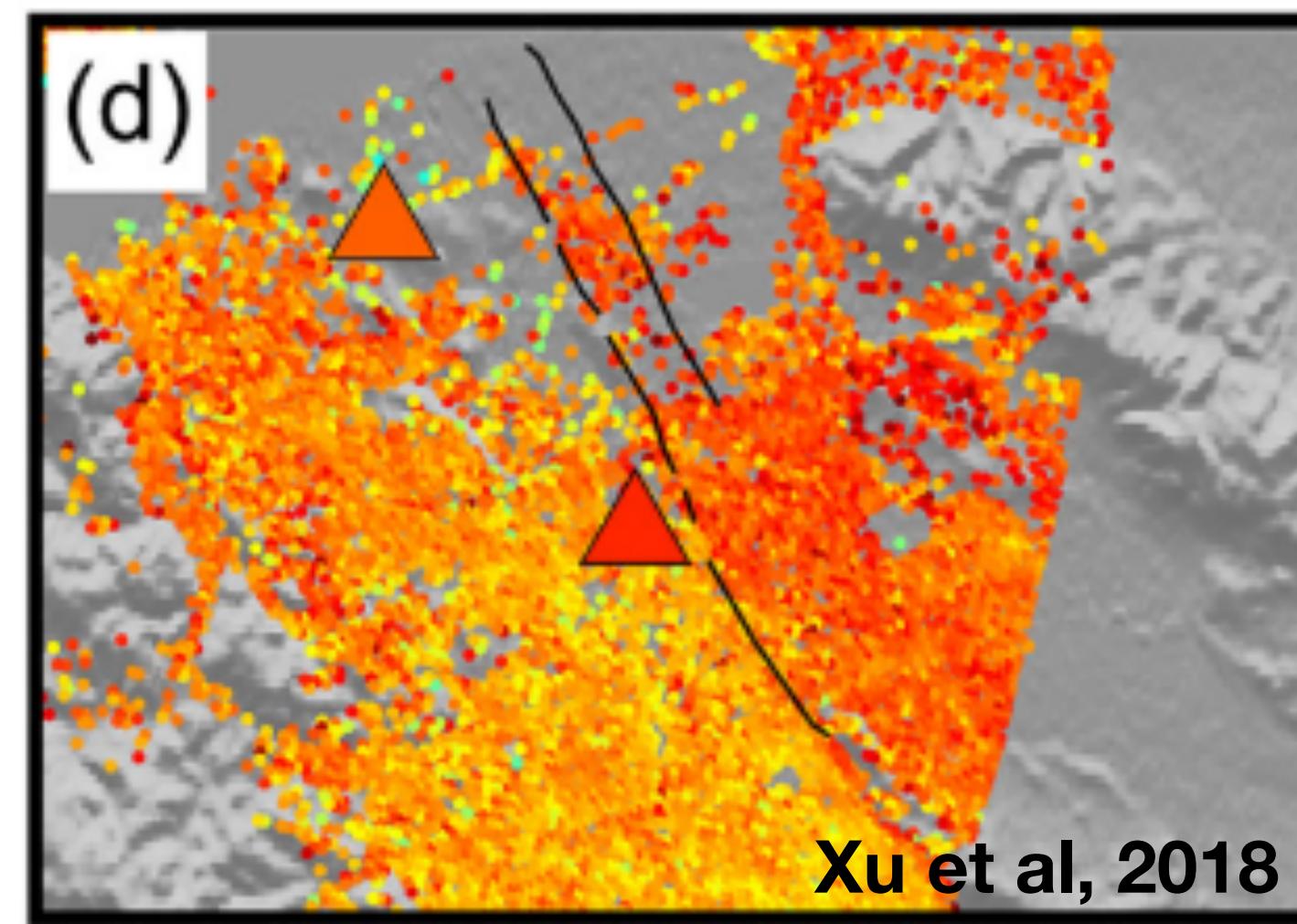


Galehouse and Liencamper, 2003

ERS 1/2, 1992-2002

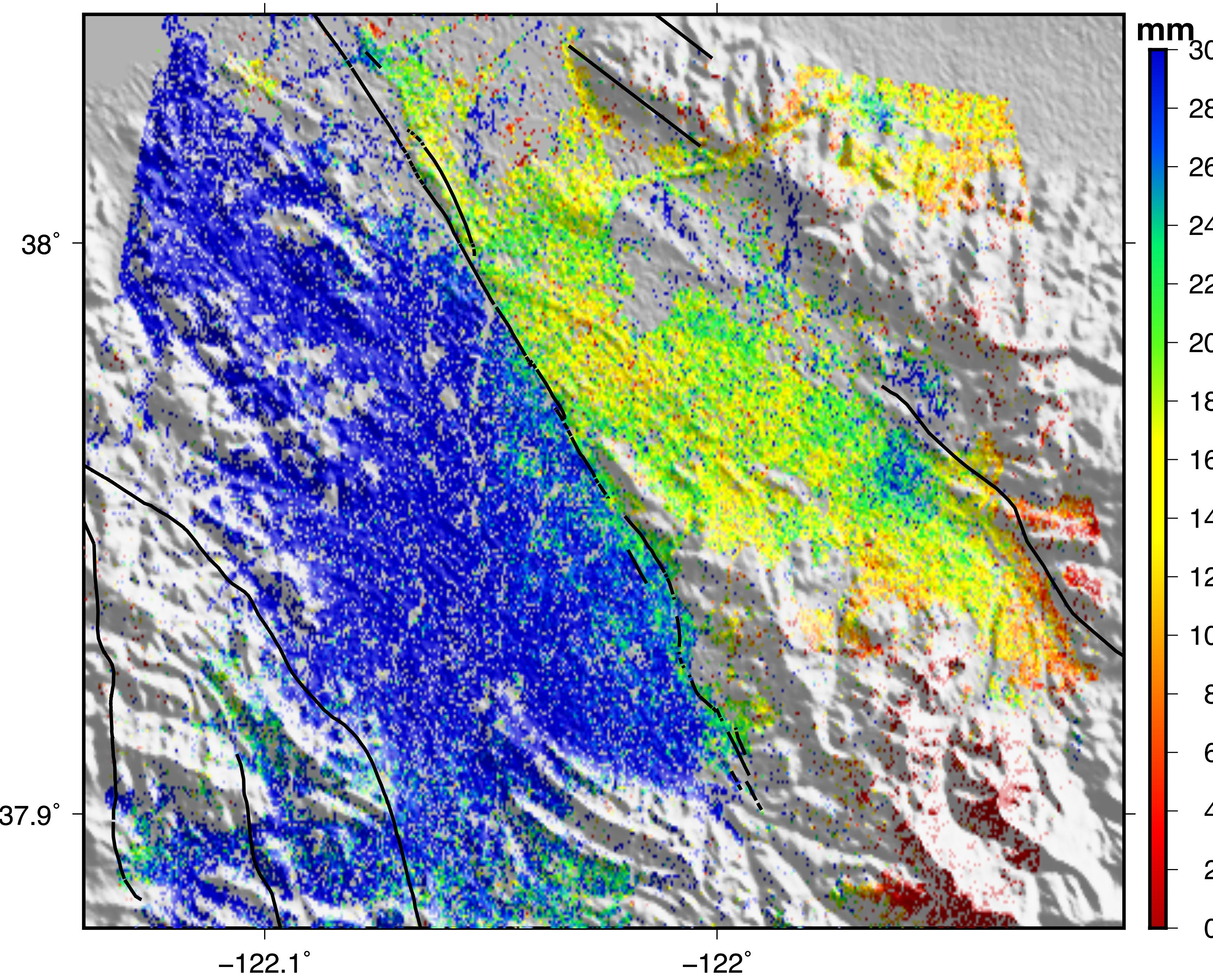


Envisat, 2006-2010

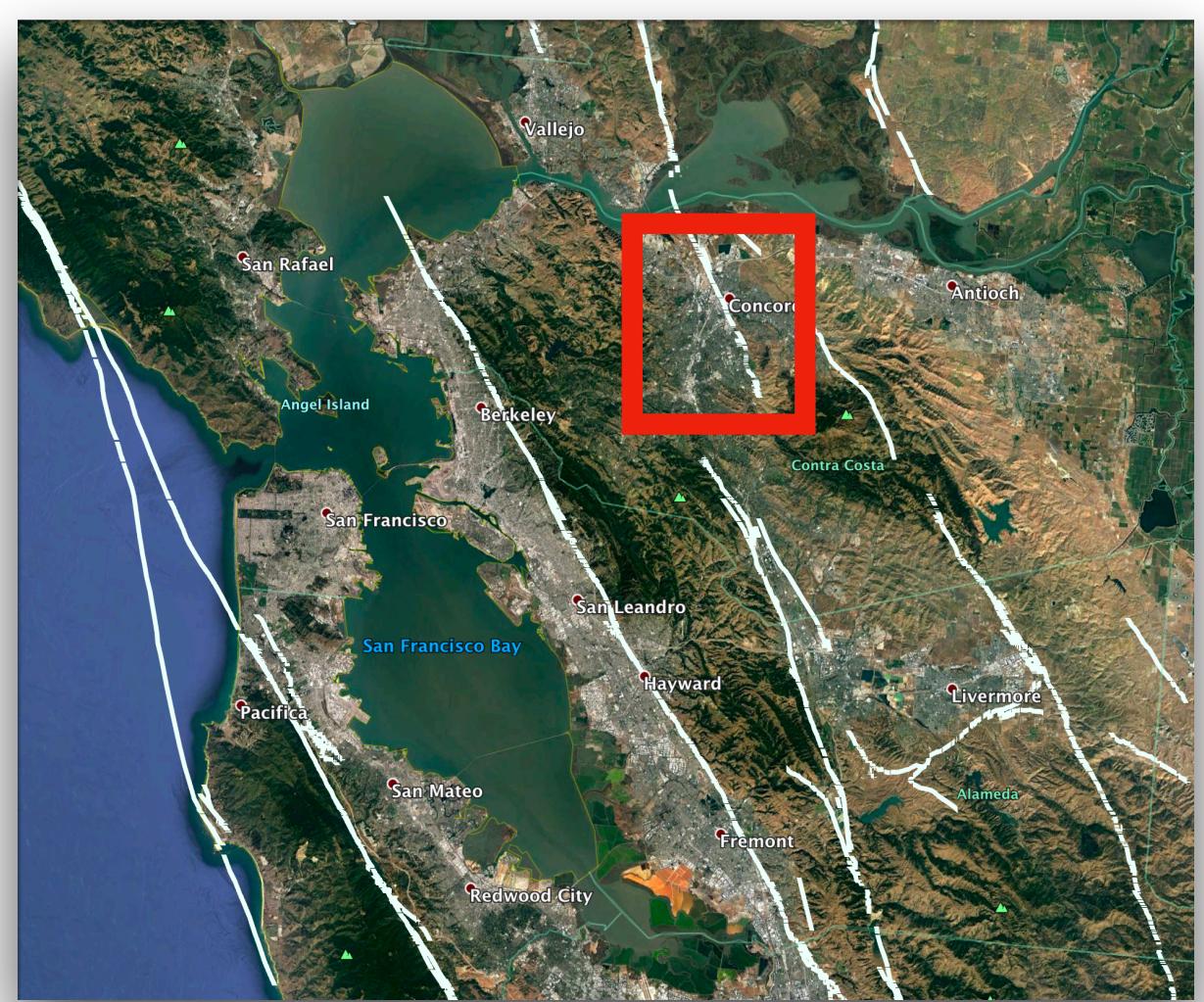
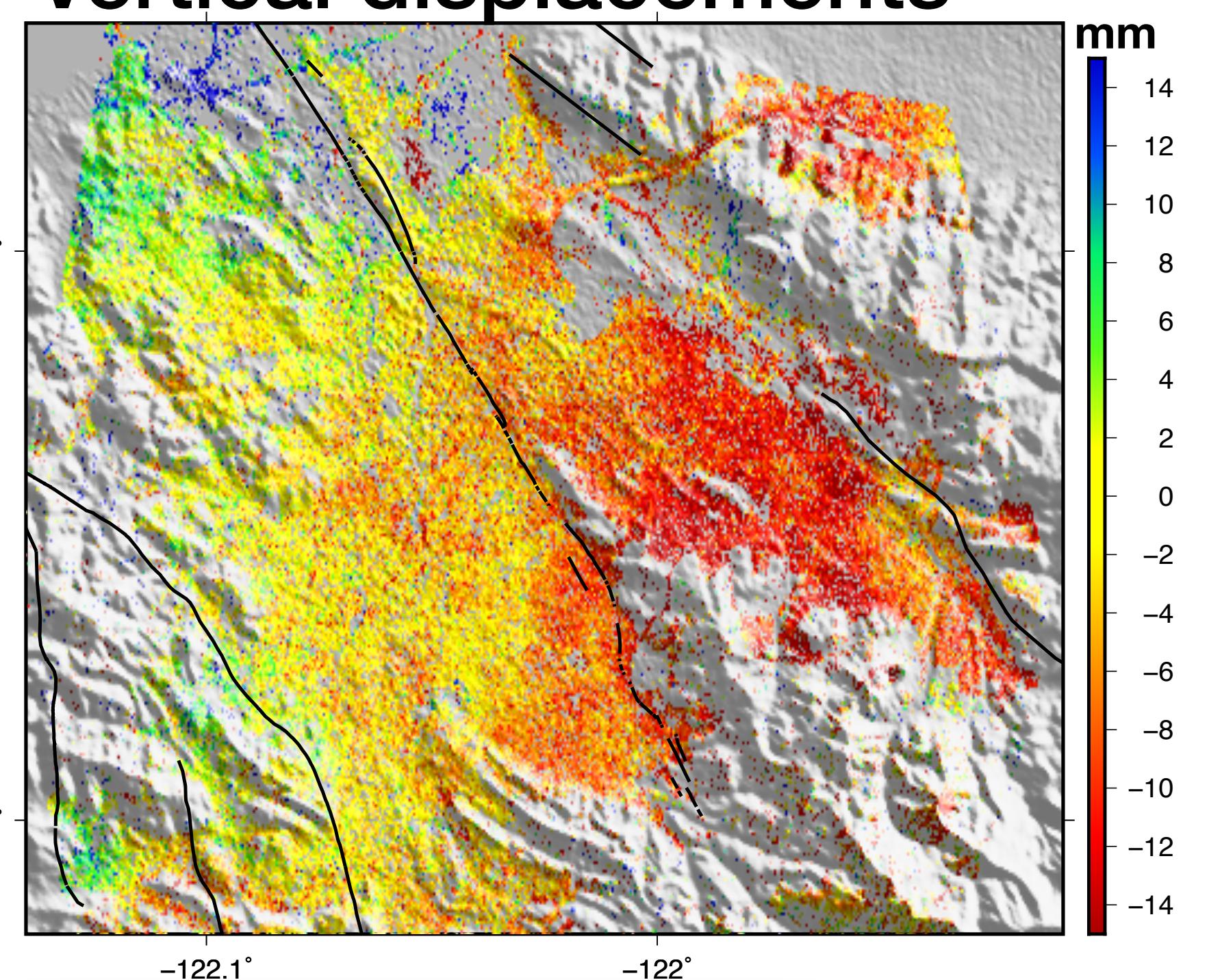


Xue et al., 2018

# Fault parallel displacements

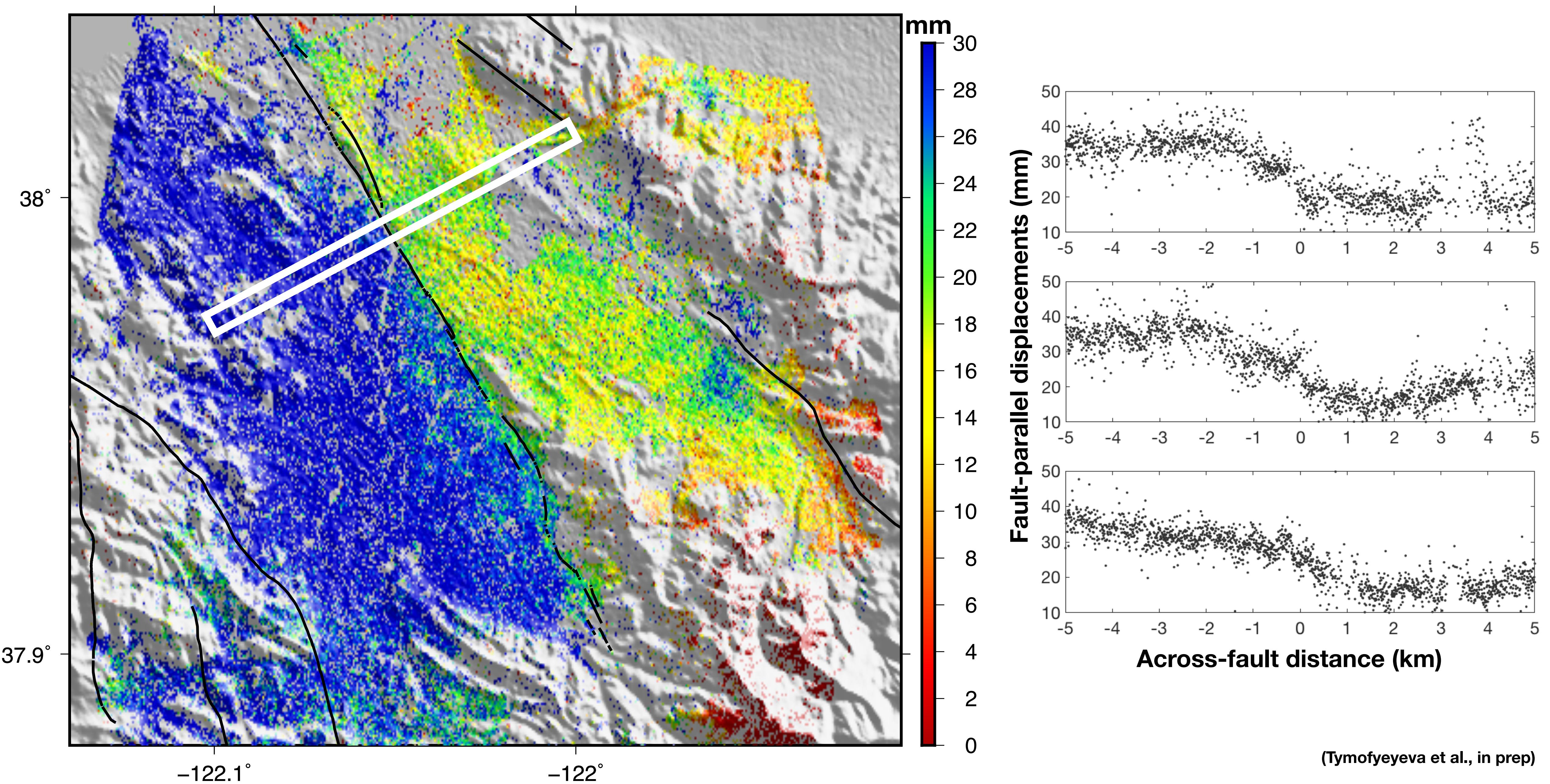


# Vertical displacements

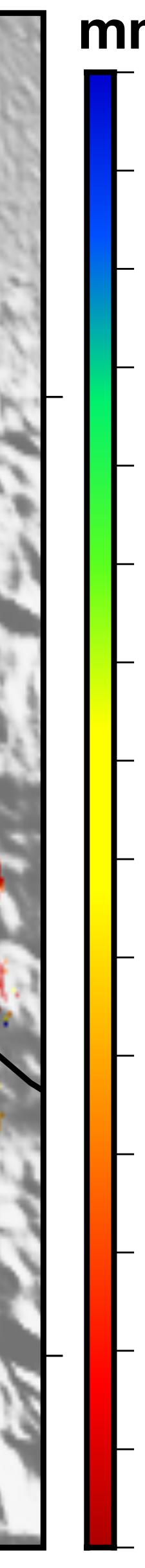
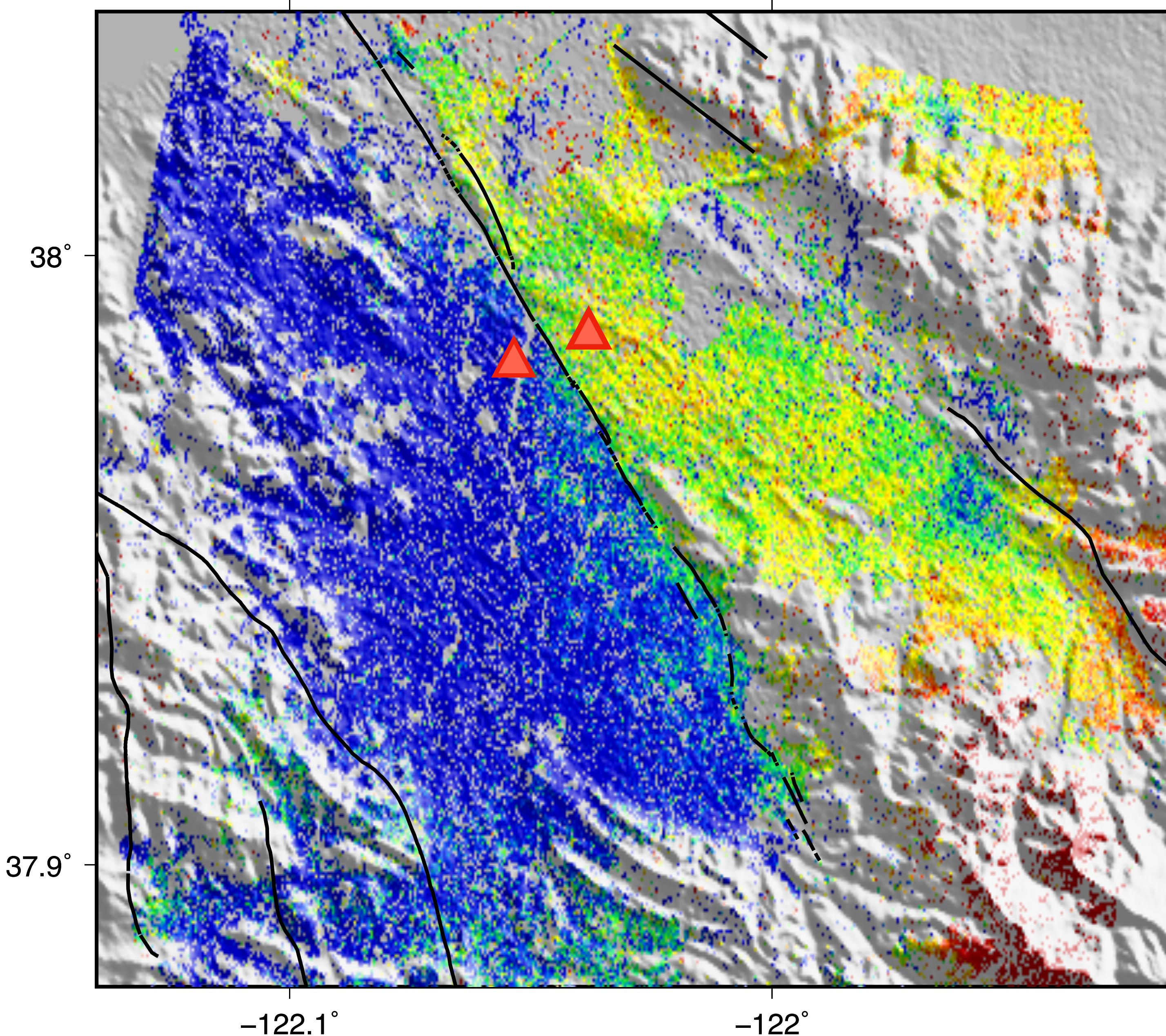


(Tymofyeyeva et al., in prep)

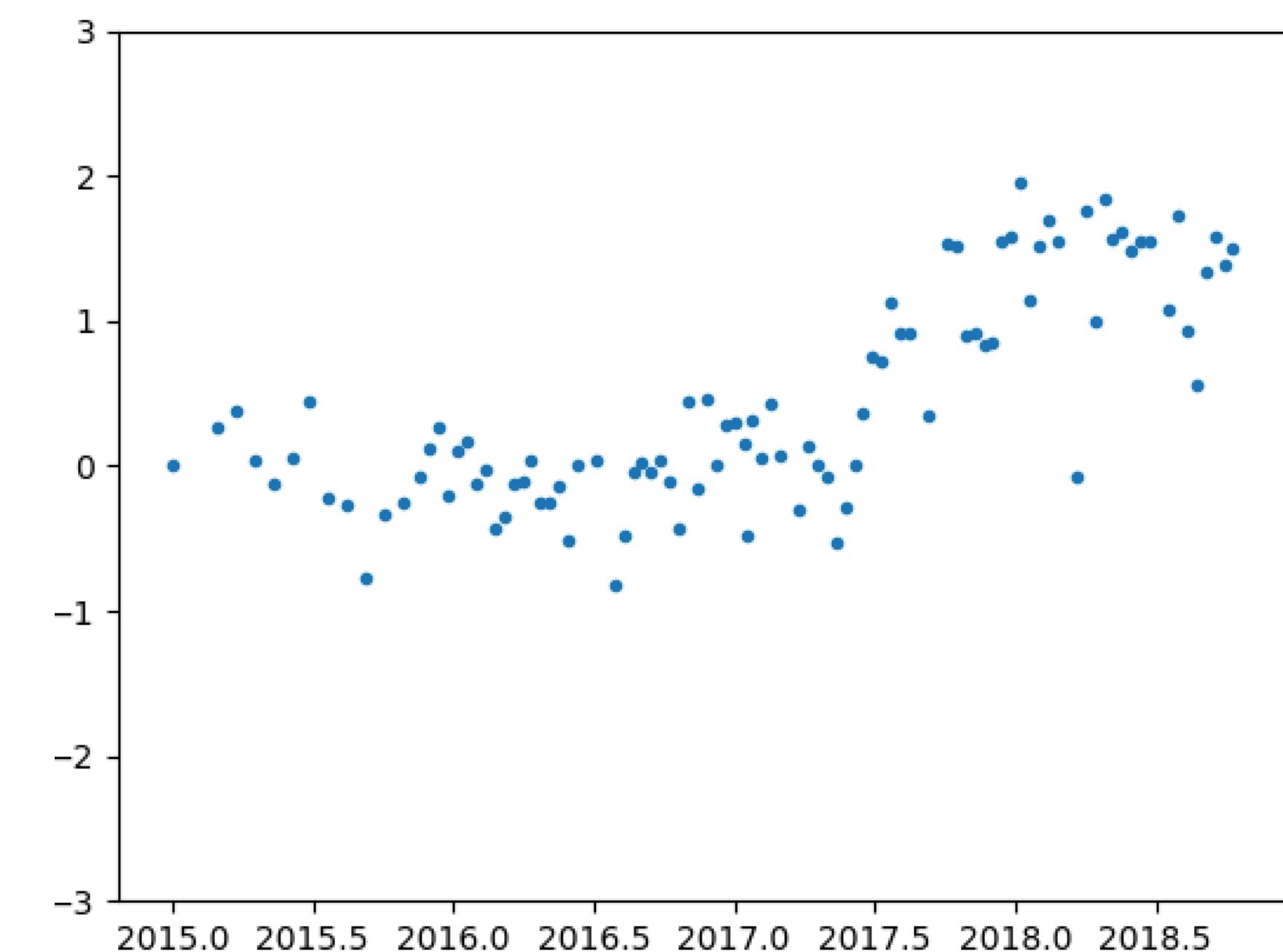
# Fault-parallel displacements: 2015-2018



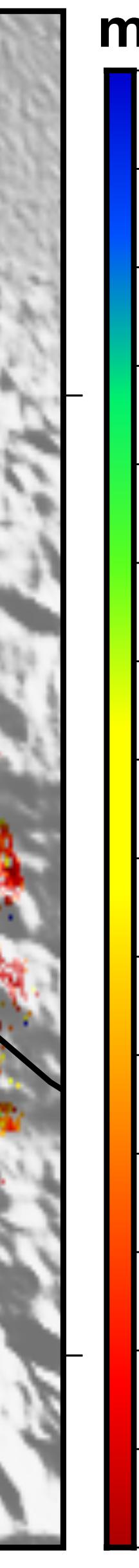
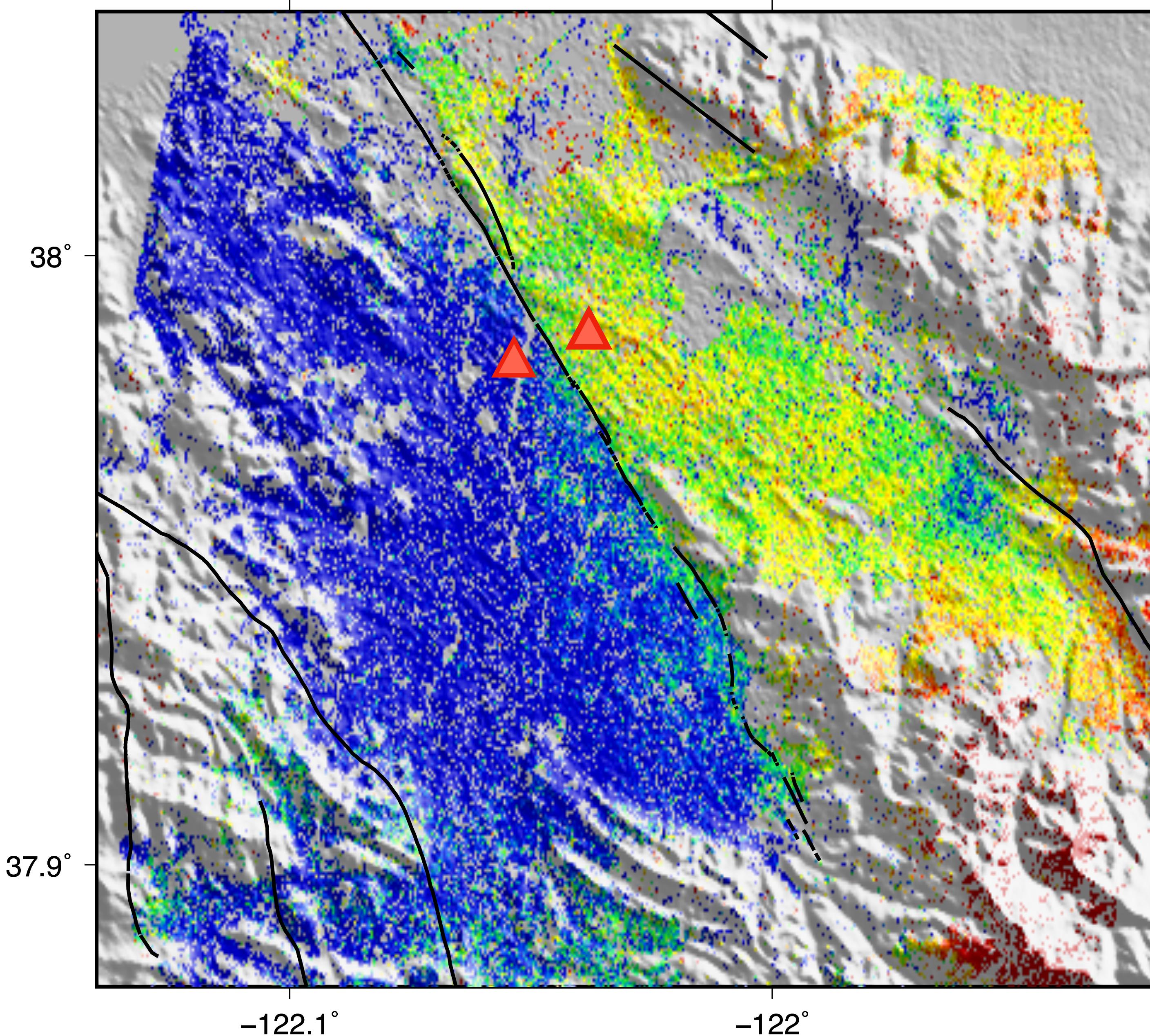
# Surface displacements: 2015-2019



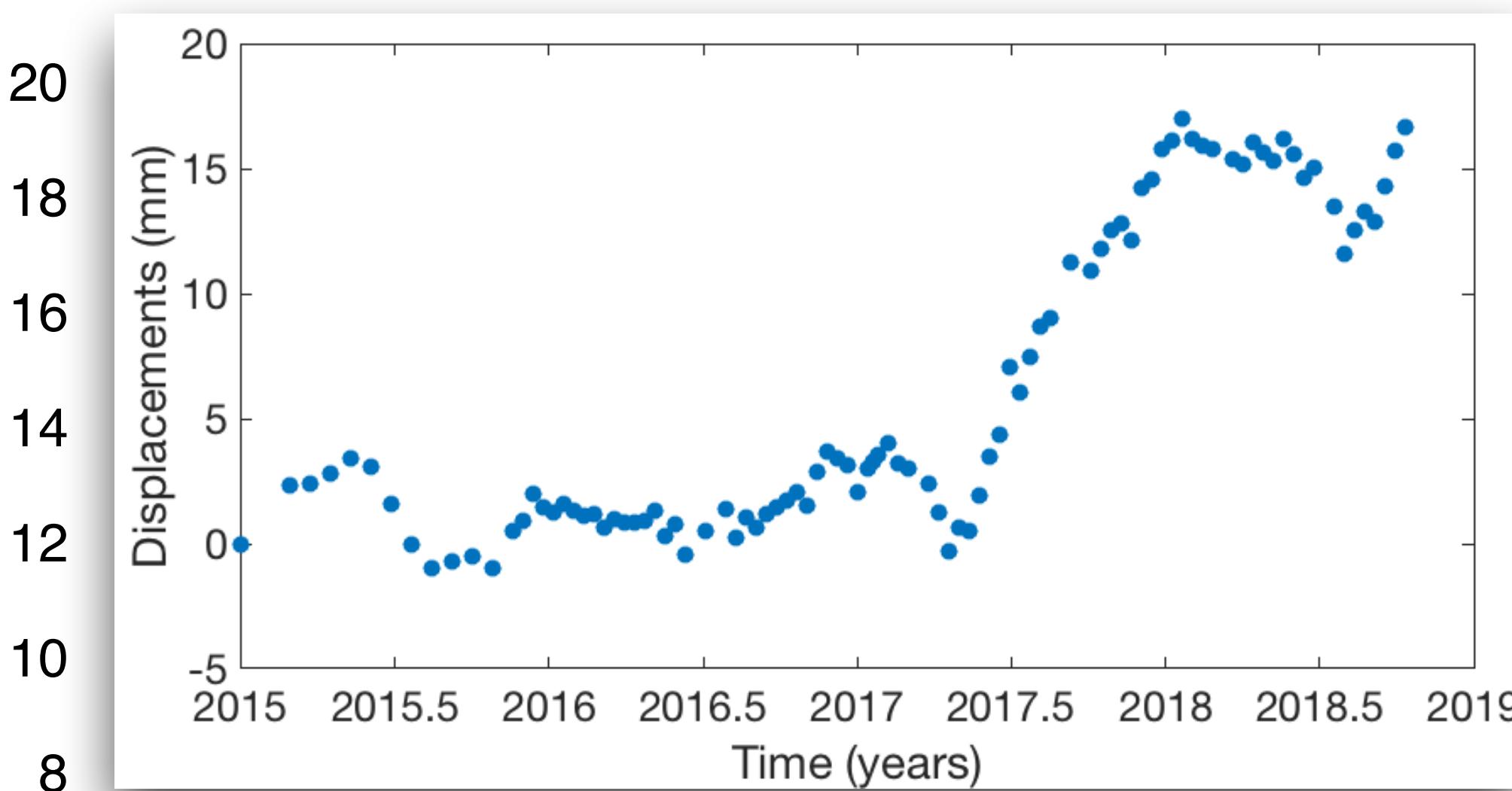
Cumulative displacement  
time series



# Surface displacements: 2015-2019



**Cumulative displacement  
time series**



# Conclusions

- We apply the SqueeSAR method to the study of shallow fault creep on the Concord Fault in the Eastern San Francisco Bay Area, where continuous GPS stations and other geodetic instruments are not available close to the fault.
- We use data from the European Sentinel-1 mission to observe a transient shallow creep event on the Concord fault.
- We are able to determine that the event began in the summer months of 2017, with variable slip along the fault, and a peak cumulative slip amplitude of approximately 15 mm in the direction parallel to the fault trace.

# References

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